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Committee on the Peaceful Uses of Outer Space

Report of the United Nations Expert on Space Applications

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I. Introduction

1. At its thirty-sixth session, held in Vienna from 22 to 26 February 1999, the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space reviewed the activities of the United Nations Programme on Space Applications. The Subcommittee noted that the 1998 activities of the Programme had been carried out satisfactorily and that, upon the recommendation of the Committee, the activities scheduled for 1999 had been endorsed by the General Assembly in its resolution 53/45 of 3 December 1998.

2. The Subcommittee recommended to the Committee, for its approval, the activities scheduled for 2000 under the regular budget, and took note of other activities of the Programme, all of which were to be implemented as part of the space-applications-related recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82), as proposed by the Expert on Space Applications in his annual report (A/AC.105/715) submitted to the Scientific and Technical Subcommittee at its 1999 session. Summaries of the activities carried out within the mandate of the Programme in 1999 and those scheduled for implementation in 2000 are presented below.

3. The number of activities proposed by the Expert for 2000 was reduced in comparison to previous years to provide flexibility for the Programme to organize activities that could serve to implement the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), held in Vienna from 19 to 30 July 1999.

4. In preparing to follow up on relevant recommendations made by UNISPACE III, the Office for Outer Space Affairs is reviewing the report of the Conference, with emphasis on the resolution entitled "The Space Millennium: Vienna Declaration on Space and Human Development"[1] and General Assembly resolution 54/68 of 6 December 1999 in which, among other things, the Assembly endorsed the Vienna Declaration and provided guidance for future plans of the Programme on Space Applications.

5. In addition to the guidance given by UNISPACE III and the General Assembly, the Expert has initiated a process of consultations with Member States and their institutions, space agencies and intergovernmental and non-governmental organizations, including bodies and specialized agencies of the United Nations system, to define appropriate near- and mid-term objectives for the Programme and activities through which they could be reached. The objectives and proposed activities of the Programme for 2000 and beyond will be presented to the Scientific and Technical Subcommittee and the Committee in 2000 for their consideration and approval. An initial concept of the goal of the Programme, its overall strategy to achieve that goal, the proposed focus of its activities and ways and means through which the Expert proposes to strengthen the Programme are presented below.

II. Mandate of the Programme

6. The General Assembly, in its resolution 37/90 of 10 December 1982, expanded the mandate of the Programme to include, in particular, the following elements: (a) promotion of greater exchange of actual experiences with specific applications; (b) promotion of greater cooperation in space science and technology between developed and developing countries as well as among developing countries; (c) development of a fellowship programme for in-depth training of scientists, technologists and applications specialists; (d) organization of seminars on advanced space applications and new system developments for managers and leaders of space application and technology development activities as well as seminars for users in specific applications; (e) stimulation of the growth of indigenous nuclei and an autonomous technological base in cooperation with other United Nations organizations and/or States Members of the United Nations or members of the specialized agencies; (f) dissemination of information on new and advanced technologies and applications; and (g) provision or arrangements for provision of technical advisory services on space applications projects, upon request by Member States or any of the specialized agencies.

A. Regional preparatory conferences for the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space

7. In paragraph 23 of its resolution 52/56 of 10 December 1997, the General Assembly agreed that the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) should be convened at the United Nations Office at Vienna from

19 to 30 July 1999 as a special session of the Committee, open to all States Members of the United Nations. In its report on the work of its fortieth session, the Committee agreed that, as part of its programme of regular activities for 1998 and 1999, the Programme should organize regional preparatory conferences for UNISPACE III.[2] The organization of the special preparatory conferences were carried out in consultation with Member States in each region. The programme of each of the preparatory conferences reflected the items of the annotated agenda of UNISPACE III.

8. In addition to the three preparatory conferences for UNISPACE III held in 1998 in Chile, Malaysia and Morocco for the benefit of Member States in the respective regions, a fourth preparatory conference was held in Bucharest, Romania, from 25 to 29 January 1999 for the benefit of the eastern European countries. A detailed report of that preparatory conference is contained in document A/CONF.184/PC/5. The preparatory conferences took into consideration the objectives of UNISPACE III, focusing on: (a) enhancing the understanding of Member States of the role and use of space technology in social and economic development; (b) issues associated with implementing space technology and applications programmes; and (c) improving and facilitating regional and international collaboration. (See item 1, annex I of the present report.)

B. Development of indigenous capability

9. The efforts of the Programme in developing indigenous capability at the local level has focused, in large part, on the development of human resources. In that connection, the General Assembly, in its resolution 45/72 of 11 December 1990, endorsed the recommendation of the Working Group of the Whole of the Scientific and Technical Subcommittee, as approved by the Committee, that:

> "... the United Nations should lead, with the active support of its specialized agencies and other international organizations, an international effort to establish regional centres for space science and technology education in existing national/regional educational institutions in the developing countries" (A/AC.105/456, annex II, para. 4 (n)).

10. The General Assembly, in its resolution 50/27 of 6 December 1995, also endorsed the recommendation of the Committee that "these centres be established on the basis of affiliation to the United Nations as early as possible and that such affiliation would provide the centres with the necessary recognition and would strengthen the possibilities of attracting donors and of establishing academic relationships with national and international space-related institutions". The Programme continues to work with Member States at the regional level to establish these Centres. Details of these efforts are contained in paragraphs 11 to 17 below.

1. Regional centres for space science and technology education

(a) Africa

11. The African Centre for Space Science and Technology—in French Language (CRASTE-LF) held a Workshop in Rabat from 22 to 23 November 1999 on the orientation of the scientific activities of the Centre. The Workshop identified the Centre's needs and priorities in training and research in space science. The recommendations of the Workshop will be submitted to the Governing Board of the Centre at its meeting scheduled for April 2000. Other activities of the Centre for 2000 include a course beginning in April on remote sensing and geographic information systems and a course in September/October on space telecommunication. In addition, the Centre has started preparation of a directory on the availability of African skills in space technology.

12. The highlights of the programme of the African Regional Centre for Space Science and Technology Education—in English Language (ARCESSTE-E) to be held at Ile-Ife, Nigeria, in 2000 are as follows: (a) a Meeting of the Governing Board, 24-25 January; (b) Outreach Programme for Secondary Schools on Basic Sciences and Elementary Basic Space Science, 20-21 February; (c) Workshop on Satellite Meteorology, 20-31 March; (d) commencement of the Remote Sensing Programme (9 months), 17 April; and (e) Meeting of the Governing Board, July. In addition, the following research projects will commence in 2000: (a) bilateral research programme between the National Space Development Agency (NASDA) of Japan and the Centre on tropical rainfall measurement; (b) Tropical Tropospheric Research Satellite (TTRS) Project (a bilateral research project of the National Aeronautics and Space Administration (NASA) of the United States of America and Nigeria; and (c) control of methane and volatile organic carbon emissions from upstream oil and gas systems in Nigeria (proposal submitted to the Federal Environmental Protection

Agency of Nigeria for submission to and endorsement by the Global Environmental Facility (GEF).

(b) Asia

13. The Centre for Space Science and Technology Education in Asia and the Pacific held its fourth Governing Board Meeting and its first Advisory Committee Meeting in New Delhi on 6 and 7 July 1999. The developments to date include the following: (a) the number of member countries has now reached 14; and (b) three courses in remote sensing and geographic information systems and a course each on satellite communication, satellite meteorology, and space and atmospheric sciences have been held since the inauguration of the Centre. The second course on satellite communication commenced on 1 July 1999 at the Space Applications Centre of the Indian Space Research Organization in Ahmedabad and will be concluded on 31 March 2000, and the fourth course on remote sensing and geographic information systems began on 1 October 1999 and will be concluded on 30 June 2000. With these eight courses, about 170 students from 27 countries will have benefited from the programmes of the Centre.

(c) Latin America and the Caribbean

14. The first meeting of the Governing Board of the Regional Centre for Space Science and Technology Education in Latin America and the Caribbean (CRECTEALC) was held in Brasilia on 15 October 1999. Derli Chaves Machado da Silva has been designated as Secretary-General of CRECTEALC. He has been entrusted with the task of defining the role and composition of the Secretariat of the Centre and of promoting its affiliation to the United Nations through a cooperation agreement. He will also sign, on behalf of CRECTEALC, the Headquarters' agreement with the Government of Brazil.

(d) Western Asia

15. An evaluation mission was carried out from 24 June to 1 July 1998 in Jordan and the Syrian Arab Republic, the two countries offering to host a centre for space science and technology education in western Asia. The two experts conducting the mission met with government and institutional representatives and carried out a detailed analysis of the elements offered, including: physical infrastructure (i.e. academic, research and living facilities); financial support; equipment available; existing space science and technology-related education programmes and experience; the degree to which the proposed concept of the centre could be fulfilled; level of governmental and institutional support; administrative and academic autonomy offered; and local expertise and experience.

16. Following a review of the mission report and of offers and commitments of the two countries, Jordan was identified as the host country. An announcement on the establishment and location of the centre has been made by the United Nations Office for Outer Space Affairs. The Office will be requesting Jordan to prepare a draft agreement to be discussed, adopted and entered into by all countries of western Asia. The draft agreement should embody such issues as the goals, objectives and future direction of the centre and the structure of its governing board and personnel. The document entitled "Centres for space science and technology education" (A/AC.105/534) could be used as a basis for preparing the draft.

(e) Network of Space Science and Technology Education and Research Institutions for Central-eastern and South-eastern Europe

17. Following discussions held on 25 February and 22 July 1999 at the United Nations Office at Vienna on the Network of Space Science and Technology Education and Research Institutions of Central-eastern and South-eastern Europe, a meeting of the national coordinators on the operation and functioning of the Network was organized and hosted by the Bulgarian Academy of Sciences in Sofia, Bulgaria, from 21 to 22 October 1999. The deliberations of the first session of the Network were based on and guided by: (a) the report of the United Nations technical study mission, which emphasized projects and programmes that could benefit the operation of the Network; (b) recommendations of expert and informal meetings of the Network held between 1996 and 1999; (c) recommendations of the UNISPACE III preparatory conference for eastern Europe; and (d) recommendations of UNISPACE III. The deliberations focused extensively on the role of the core institutions within the Network and on the institutional, legislative, regulatory and administrative measures needed for their operation within the Network. The national coordinators agreed that the Chairman of the Steering Committee of the Network would circulate a draft text of an agreement for the Network, to be revised and returned to the Chairman in order to have a final text for possible signature by all members (national coordinators and Permanent Representatives to the United Nations in Vienna from the region) during the thirty-seventh session of the Scientific and Technical Subcommittee. The Office

for Outer Space Affairs would also prepare and present for signature a cooperation agreement between the Office and the Network. It was also decided that the second session of the Network would be held in Greece in 2000 to discuss specific educational projects that could be jointly developed, designed and produced within the framework of the Network's objectives.

C. Long-term fellowship programmes for in-depth training

18. The long-term fellowship programme for in-depth training is being reoriented to provide an opportunity to support the objectives and strengthen the results of other activities of the United Nations Programme on Space Applications. In particular, the three fellowships for research in remote sensing technology tenable at the European Space Research Institute (ESRIN) facilities of the European Space Agency (ESA) in Frascati, Italy, will allow university educators who participated in the United Nations/Sweden series of courses to improve their skills and to demonstrate in their university environment, through appropriate projects, the practical usefulness of remote sensing. The ESRIN fellowships that were offered for the 1999-2000 period will begin on 1 February 2000 and will benefit two university educators from Nigeria. A third fellowship at ESRIN will begin on 1 June 2000 and will benefit a university educator from Senegal.

D. Technical advisory services and promotion of regional cooperation

19. Various technical advisory services currently being provided under the auspices of the Programme are described below.

1. Follow-up activities to the United Nations/European Space Agency basic space science workshop series

20. The eighth in the series of United Nations/ESA workshops on basic space science, which among other things addressed the feasibility of establishing a world space observatory, was held in Mafraq, Jordan, from 13 to 17 March 1999. The ninth workshop will be held in Toulouse, France, from 27 to 30 June 2000 (for details, see annexes I and II, respectively, of the present report). The United Nations, through the Programme, and ESA will continue to provide technical assistance for the establishment and operation of astronomical telescope facilities in Colombia, Egypt, Honduras, Jordan, Morocco, Paraguay, Peru, the Philippines, Sri Lanka and Uruguay. The telescope facilities are follow-up projects of the United Nations/ESA series of workshops on basic space science.

2. Asia-Pacific Satellite Communications Council

21. Since its establishment in 1994, with the assistance of the Programme, the Asia-Pacific Satellite Communications Council (APSCC) has played a key role in promoting the development of and cooperation in satellite communications in Asia and the Pacific by providing a platform to exchange views and ideas on new technologies, systems, policies and satellite communication services. The Programme will continue to support efforts by Member States in the region to strengthen the role of APSCC as a regional forum for formulating collective positions to deal with the issues of frequency planning and coordination, as well as training. In that connection, the Programme will provide technical assistance in the preparations for the APSCC 2000 Conference and Exhibition, entitled "New Vision for Satellite Communication in the 21st Century", which will provide opportunities for international experts and executives to plan for the next generation of communication satellites.

3. American Institute of Aeronautics and Astronautics

22. The Office for Outer Space Affairs co-sponsored the fifth International Cooperation in Space Workshop, organized by the American Institute of Aeronautics and Astronautics (AIAA) under the theme "International Space Cooperation: Solving Global Problems" and held in Bermuda from 11 to 15 April 1999. The Workshop was an integral part of the Technical Forum, one of the bodies established by UNISPACE III. The recommendations made by the Workshop were presented to UNISPACE III and are included in annex III of its report (A/CONF.184/6), which contains the conclusions and proposals emanating from the activities of the Technical Forum. The Office contributed to the planning of the discussions to be held during the Workshop and, through the Programme, defrayed the costs of air travel and living expenses of six participants from developing countries. Recommendations made by the Workshop that are addressed to the Programme and to the United Nations system include the need to promote the awareness of developing countries of the cost benefits and security issues related to satellite navigation as well as to

assist those countries in defining user requirements and types of support needed to use space technology for disaster management.

4. Second Ministerial Conference on Space Applications for Sustainable Development in Asia and the Pacific

23. The second Ministerial Conference on Space Applications for Sustainable Development in Asia and the Pacific, organized by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and hosted by the Government of India, was held in New Delhi from 15 to 20 November 1999. The Conference provided a unique forum for senior policy makers and decision makers to exchange views and information, develop new policy scenarios, develop a blueprint for regional space development and decide upon an action-oriented programme under the second phase of implementation of the Regional Space Applications Programme for Sustainable Development (RESAP). The decisions were reflected in the Ministerial Declaration on Preparing the ESCAP Region for the Space Information Age in the Twenty-First Century adopted by the Conference. The Office for Outer Space Affairs made a presentation on the results of UNISPACE III and highlighted the importance of coordinating future activities of RESAP and the United Nations Programme on Space Applications in implementing relevant recommendations.

5. Committee on Earth Observation Satellites

24. The thirteenth plenary meeting of the Committee on Earth Observation Satellites (CEOS) was held in Stockholm from 10 to 12 November 1999. The Office for Outer Space Affairs made a presentation during the meeting on the results of UNISPACE III and highlighted the inclusion of the Integrated Global Observing Strategy (IGOS) in the Vienna Declaration. Through its activities, particularly those in collaboration with the regional centres, the Office indicated that the Programme would support the IGOS objectives by promoting contributions from developing countries to comprehensive long-term global observation data sets.

25. The meeting established an ad hoc working group on Earth observation education and training in developing countries, to be lead by the Indian Space Research Organization (ISRO), which will prepare a strategy proposal for future CEOS activities in these areas. The Office has joined the ad hoc working group, which will present the results of its work at the fourteenth plenary meeting of CEOS in Rio de Janeiro, Brazil, in 2000. The Meeting also created a Disaster Management Support Group (DMSG) as an ad hoc working group to support natural and technological disaster management on a worldwide basis. The working group will foster improved utilization of existing and planned Earth observation satellite data. The Programme on Space Applications has indicated that, through its activities in 2000, it will contribute to the specific objectives of DMSG, particularly by assisting developing countries to improve the identification of and access to useful Earth observation satellite data and products and by assisting them to develop and identify specific user requirements for satellite data, derived products and services in support of disaster management.

6. Follow-up activities to the United Nations/European Space Agency sponsored training courses

26. The Programme continues to collaborate with the Department of Economic and Social Affairs of the Secretariat and ESA in implementing follow-up projects to the training courses on applications of data from the European Remote Sensing (ERS) and other satellites to natural resources, renewable energy and the environment that were held at Frascati, Italy, in 1993, 1994, 1995 and 1997. The Programme has been providing the necessary technical assistance and expertise required for initiating a project in Latin America (Argentina, Bolivia and Chile), as well as for the implementation in 2000 of projects in Asia and the Pacific (Viet Nam) and Africa (AGRHYMET and Niger). The projects are aimed at strengthening the capacity of participating institutions in developing countries to use satellite data for resource management.

E. Training courses, workshops, conferences and symposia organized by the United Nations

1. Activities carried out in 1999

27. In 1999, in addition to the mandated Regional Preparatory Conference on UNISPACE III for eastern Europe which was held in Bucharest, Romania, from 25 to 29 January 1999, three workshops, one training course and one conference were conducted under the auspices of the Programme. A summary of each of the activities is given in annex I to the present report.

2. Activities scheduled for implementation in 2000

28. The training courses, workshops, conferences and symposia scheduled for 2000 are shown in annex II.

3. Activities proposed for implementation in 2001

29. The following activities are proposed for 2001:

(a) Eleventh United Nations/Sweden International Training Course on Remote Sensing Education for Educators, Stockholm and Kiruna, Sweden, May-June 2000;

(b) United Nations/International Astronautical Federation (IAF) Workshop on the use of space technology for the benefit of developing countries, Toulouse, France, September/October 2001;

(c) Tenth United Nations/European Space Agency Workshop on Basic Space Science, for the benefit of developing countries in Africa, Mauritius;

(d) United Nations/Austria Symposium on promoting the participation of young professionals in space-related fields, Graz, Austria, September 2000;

(e) Several workshops to be organized at the regional centres for space science and technology education affiliated to the United Nations.

F. Space information

30. The eleventh in the series of documents containing selected papers from the activities of the Programme, entitled *Seminars of the United Nations Programme on Space Applications* has been issued as ST/SPACE/3. A booklet entitled "Space for Development", giving detailed descriptions of past and ongoing activities of the United Nations Programme on Space Applications and an indication of its future activities, was issued for UNISPACE III. An updated version of the booklet is currently under preparation.

31. Information for Member States and the general public on the latest developments in the activities carried out by the Programme can be found on the home page of the Programme established on the Internet as part of the home page of the Office for Outer Space Affairs (http:/www.un.or.at/OOSA/). It contains information on activities that have been implemented as well as reports and press releases issued within the framework of the Programme. The schedules, objectives and programmes of planned activities and projects are also included on the home page.

III. Reorientation of the Programme after UNISPACE III

32. The Programme will aim at further promoting, through international cooperation, the use of space technologies and data for sustainable economic and social development in the developing countries by raising the awareness of decision makers of the cost-effectiveness and additional benefits to be obtained; establishing or strengthening the capacity in developing countries to use space technology; and strengthening outreach activities to disseminate awareness of the benefits obtained.

33. According to the initial concept of the Programme proposed by the Expert on Space Applications, the overall strategy of the Programme will be to identify a few major themes with near- and mid-term objectives on which to concentrate initially. For each theme, individual activities will build on the results of previous activities aiming to reach concrete results in a one- to three-year period.

34. The activities of the Programme will focus on:

(a) Education and training support for capacity-building in developing countries through:

(i) The regional centres for space science and technology education and the Network of Space Science and Technology Education and Research Institutions for Central-eastern and South-eastern Europe;

(ii) Workshops on advanced space applications and short- and medium-term training programmes;

(iii) A reorientation of the long-term fellowship programme, to include support for the implementation of pilot projects;

(iv) Promoting the participation of university graduates and young professionals in space activities;

(b) Provision of technical assistance to promote the use of space technologies in development programmes by:

(i) Continuing to support pilot projects as follow-up to past activities of the Programme (e.g. the series of courses and workshops organized in cooperation with ESA);

(ii) Initiating cooperative pilot projects in thematic areas of priority interest to Member States;

(iii) Providing technical advice, on request, to Member States, bodies and specialized agencies of the United Nations system and relevant national/international organizations

(c) Enhancing access to space-related information and data by:

(i) Identifying existing information systems and promoting their use and enrichment;

(ii) Implementing an outreach programme for university graduates, young professionals, decision makers and the general public;

(iii) Further developing the International Space Information System (the Office for Outer Space Affairs home page and published materials, including multi-media publications on CD-ROMs).

35. The Programme will be strengthen by:

(a) Increasing the resources available to it by internally adjusting priorities and by seeking additional regular and extrabudgetary funds and in-kind contributions;

(b) Further orienting several activities of the Programme to support the same objective;

(c) Working with the regional commissions and specialized agencies of the United Nations system and relevant national and international organizations;

(d) Establishing flexible but well-defined terms for cooperation with partners (i.e. what is to be achieved, in which time-frame and the road to be followed);

(e) Including, incrementally, the participation of private industry in its activities;

(f) Establishing feedback mechanisms with clients and cooperating partners.

IV. Voluntary contributions

36. The successful implementation of the activities of the Programme in 1999 benefited from the support and voluntary contributions of Member States of the United Nations and their institutions, as well as from the assistance and cooperation of regional and international governmental and non-governmental organizations. In 1999, the Programme received voluntary contributions, both in money and in kind, including the sponsorship of technical and scientific presentations by experts, as described below.

37. A number of Member States (Austria, Bulgaria, China, Jordan, the Netherlands, Romania, Spain and Sweden) and governmental and non-governmental organizations (Al al-Bayt University (Jordan), Austrian Space Agency (ASA), Bulgarian Academy of Sciences, ESA, French space agency Centre National d'Études Spatiales (CNES), German Space Agency (DLR), International Astronomical Union (IAU), Instituto Nacional de Técnica Aeroespacial—Spanish Mission Control Centre (INTA-SPMCC), International Astronautical Federation (IAF), International Institute for Aerospace Survey and Earth Sciences (ITC), National Aerospace Laboratory (NLR) of the Netherlands, Romanian Space Agency, Station 12(R) of the Netherlands, Stockholm University, Swedish International Development Cooperation Agency (Sida), the Swedish Space Corporation (SCC) and SSC Satellitbild of Sweden) provided support for the activities of the Programme in 1999 in various ways, including the following:

(a) A voluntary cash contribution of $22,000 from the Government of Austria, in support of the activities of the Programme;

(b) A financial contribution of $95,000 was received from ESA and FF 50,000 from CNES in support of specific 1999 activities of the Programme that they co-sponsored, as reflected in annex I;

(c) Co-sponsorship of the activities of the Programme and, in particular, defrayal of the costs of international air travel of participants, local organization and facilities, room and board, and local transportation (see annex I);

(d) Sponsorship of experts by Member States and their space-related institutions as well as by regional and international organizations to make technical presentations and take part in deliberations during the activities of the Programme. The contributions are reflected in the individual reports of the 1999 activities (see annex I).

V. Financial provisions and administration of activities in 1999-2000

38. The activities of the Programme in 2000 covered in the present report will be implemented as follows:

(a) *Financial provisions*. Under the United Nations regular budget, an amount of $421,800 before recosting was approved in the programme budget by the General Assembly, at its fifty-fourth session, for implementing the activities of the Programme during the biennium 2000-2001. An amount of $210,900 before recosting from this budget will be used to implement the 2000 activities of the Programme. In order to effectively carry out its mandated and expanded activities, particularly those aimed at implementing the recommendations of UNISPACE III, it is necessary for the Programme to solicit additional funds, in the form of voluntary contributions, in support of its activities. Those contributions will be used to supplement the regular budget of the Programme;

(b) *Administration by and contributions and participation of staff*. The Office for Outer Space Affairs, and in particular the Expert on Space Applications and his staff, will carry out the activities described in the present report. In that connection, travel will be undertaken as appropriate by the Expert and staff of the Office under the provisions of the travel budget of the Office for the biennium and as may be necessary from voluntary contributions.

Notes

[1] *Report of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, 19-30 July 1999* (A/CONF.184/6), chap. I, resolution 1.

[2] *Official Records of the General Assembly, Fifty-second Session, Supplement No. 20* (A/52/20), para. 153.

Annex I

Summary of United Nations training courses, workshops and conferences held in 1999

No	*Title, location and date*	*(a) Sponsoring country* *(b) Sponsoring organizations* *(c) Host institutions*	*(a) Funding support* *(b) Number of countries* *(c) Total number of participants*
1.	Regional Preparatory Conference on UNISPACE III for Eastern Europe Bucharest, Romania 25-29 January 1999	(a) Romania (b) United Nations and ESA (c) Romanian Space Agency (ROSA)	(a) The United Nations and ESA provided air travel for nine participants; Romania provided the conference facilities and room and board for nine participants (b) 21 countries and 8 international organizations (c) 89 participants

Outcome of the activity

The Conference reached by consensus the following recommendations, which recognized the need for Member States of Eastern Europe: (a) to develop the regional Black Sea and Caspian Sea systems for environmental monitoring of the sea (especially for oil slicks, ship's traffic, ecology and climate change), making use of satellite remote sensing; (b) to create a data bank by the Office for Outer Space Affairs on commercial space projects, including information on such activities as telecommunication systems in low- and mid-Earth orbit and in geostationary satellite systems; (c) to seek the necessary support and to develop jointly, through space research, technology demonstrations and related applications in communications and Earth observation, the construction and operation of a variety of small satellites; (d) to identify mechanisms that could foster the involvement of the private sector in space applications activities; (e) to promote elementary and secondary level education and the exchange of information as well as activities such as student contests and summer courses, which should also be important goals for future activities of the Network for Space Science and Technology Research and Education Institutions for Central-eastern and South-eastern Europe; (f) to ensure that a good balance is achieved between the need to preserve outer space for future space activities and the existing practice in conducting space activities while supporting the important role of the United Nations in achieving these goals; (g) to encourage and actively participate in scientific and technological research programmes (International Space Station), as such involvement could provide major economic and social benefits to the region; and (h) to discuss at UNISPACE III the legal aspects of space activities, review and assess the current status of space law and promote its further progressive development based on the principles of the 1967 Outer Space Treaty. The proceedings of the Conference are available from the Romanian Space Agency.

(A detailed report is contained in document A/CONF.184/PC/5.)

No	*Title, location and date*	*(a) Sponsoring country* *(b) Sponsoring organizations* *(c) Host institutions*	*(a) Funding support* *(b) Number of countries* *(c) Total number of participants*
2	Eighth United Nations/ European Space Agency Workshop on Basic Space Science Mafraq, Jordan 13-17 March 1999	(a) Jordan (b) United Nations and ESA (c) Al al-Bayt University, Mafraq *Co-organizers:* ASA, CNES, DLR, IAU, NASA and The Planetary Society	(a) The United Nations and ESA provided for the air travel of 22 participants from developing countries and the Al al-Bayt University covered other expenses (b) 35 countries—30 participants from industrialized countries sponsored by their respective institutions (c) 95 participants

Outcome of the activity

Presentations delivered at the Workshop focused on research and education in basic space science. Following the Workshop, the Al al-Bayt University will start operating a small astronomical observatory equipped with a 15-inch telescope with a charge coupled device (CCD) sensor and will continue pursuing the conversion of the Baguaa 31-m communications dish into a radio telescope. These two follow-up projects of the Workshop are in line with similar projects of the United Nations/ESA workshops, organized since 1991 in all economic regions. The report on the Workshop also contains a discussion on the feasibility of establishing a world space observatory.

(A detailed report is contained in document A/AC.105/723)

No	*Title, location and date*	*(a) Sponsoring country* *(b) Sponsoring organizations* *(c) Host institutions*	*(a) Funding support* *(b) Number of countries* *(c) Total number of participants*
3	Ninth United Nations/Sweden International Training Course on Remote Sensing Education for Educators Stockholm and Kiruna, Sweden 3 May-11 June 1999	(a) Sweden (b) United Nations (c) Stockholm University, Swedish Space Corporation, SSC Satellitbild)	(a) Air travel for 13 participants was defrayed by the United Nations; all other expenses including room and board and local travel were covered by the Swedish International Development Agency, Sweden (b) 22 countries (c) 27 participants

Outcome of the activity

The Course was conducted specifically for the benefit of university educators from developing countries with the objective of developing their knowledge and skills in remote sensing technology and equipping the participants with the ability to introduce elements of the technology, as appropriate, in academic curricula of their own universities and institutes.

(A detailed report is contained in document A/AC.105/725.)

No.	*Title, location and date*	*(a) Sponsoring country* *(b) Sponsoring organizations* *(c) Host institutions*	*(a) Funding support* *(b) Number of countries* *(c) Total number of participants*
4	United Nations/China/ European Space Agency Conference on Space Applications in Promoting Sustainable Agriculture Beijing, China 14-17 September 1999	(a) China (b) United Nations/ESA (c) Ministries of Science and Technology and of Agriculture of China	(a) Air travel and partial per diem for 16 participants were defrayed by the United Nations and ESA; room and board for the participants was covered by China (b) 19 countries (c) 76 participants

Outcome of the activity

The Conference identified three priority issues related to sustainable agriculture that are of regional interest. It recommended appropriate follow-up actions that would make full use of the facilities and resources (including training) of the Office for Outer Space Affairs and ESCAP, as well as make best use of existing expertise, demonstration projects and working groups within the region as follows:

(a) *Issue*: There is a need to more fully extract benefits from satellite remote sensing, global navigation satellite systems and geographic information systems for a number of activities that are critical to achieving sustainable agricultural development. *Action*: The Office for Outer Space Affairs, in conjunction with ESCAP, will request Member States in the region to identify national coordinators. These national coordinators will be required, among other things, (i) to identify the problems related to agricultural techniques (including crop estimation and yield modelling and forecasting) that hinder sustainable agriculture development; and (ii) to identify national groups that are involved in agriculture-related activity and their training needs in the fields of satellite remote sensing, global navigation and geographic information systems, taking into account the requirements of different levels of decision-making; (b) *Issue*: There is a lack of consistency and standardization of agricultural data among countries of the region. In addition, differences in national policies result in difficulties in obtaining timely access to data and information. *Action*: The Office for Outer Space Affairs, in conjunction with ESCAP and other appropriate bodies, will, within the limits allowed by their mandates and resources, assist Member States in their efforts to develop an appropriate approach to regional data and information sharing; (c) *Issue*: The Asia and Pacific region is subject to extreme natural events and disasters that adversely affect the sustainable development of agriculture. Advanced space technologies are not currently being utilized to their full potential in managing natural disasters. *Action*: ESCAP agreed to prepare an action plan for regional disaster management to be presented at the Second Ministerial Conference on Space Applications for Sustainable Development, New Delhi, India, November 1999.

(A detailed report is contained in A/AC.105/728.)

No.	*Title, location and date*	*(a) Sponsoring country* *(b) Sponsoring organizations* *(c) Host institutions*	*(a) Funding support* *(b) Number of countries* *(c) Total number of participants*
5	United Nations/International Astronautical Federation Workshop on Space: An Integral Part of Sustainable Development Enschede, Netherlands 30 September-3 October 1999	(a) The Netherlands (b) United Nations, IAF, ESA, CNES, Station 12®, NLR, ITC	(a) The cost of air travel and living expenses, extending to the period of the fiftieth IAF Congress, for 32 participants was covered by the United Nations, IAF, ESA, CNES, Station 12®, and the Netherlands (b) 29 countries (c) 100 participants

Outcome of the activity

The Office for Outer Space Affairs, in the context of the post-UNISPACE III follow-up and in consultation with the relevant bodies and specialized agencies of the United Nations system and the Consultative Group on International Agricultural Research (CGIAR) Centres, should promote the further development of a comprehensive, Internet-based information repository with an open network structure to include information on ongoing and planned projects, expert listings, demonstrations of successful applications in different theme areas, contacts for value-adding companies, activities of United Nations organizations and funding possibilities for education and training as well as relevant public domain software (e.g. geographical information system (GIS) packages). The information repository should take into account existing information systems such as the CEOS Information Locator System.

(A detailed report is contained in document A/AC.105/733)

No.	*Title, location and date*	*(a) Sponsoring country* *(b) Sponsoring organizations* *(c) Host institutions*	*(a) Funding support* *(b) Number of countries* *(c) Total number of participants*
6	United Nations/Spain Workshop on Space Technology for Emergency Aid/ Search and Rescue Satellite-aided Tracking System for Ships in Distress Maspalomas, Canary Islands, Spain 23-26 November 1999	(a) Spain (b) United Nations (c) Centro Espacial de Canarias, INTA	(a) The air travel of eight participants was defrayed by the United Nations; room and board for these participants, workshop facilities and equipment were provided by INTA (b) 6 countries (c) 15 participants

Outcome of the activity

Recommended actions:

(a) Participants agreed to sensitize their Governments to the importance of participating in the COSPAS-SARSAT Programme;
(b) Participants should endeavour to advise their respective Governments on the need to have a well-defined national point of contact for the COSPAS-SARSAT programme;
(c) Regional workshops or seminars on the COSPAS-SARSAT Programme should be organized on a regular basis;
(d) Countries within the coverage of the Maspalomas Station Service Area wishing to participate as a user State should comply with the corresponding requirements;
(e) Participating countries should introduce the use of radio beacons and maintain a register on such use;
(f) Users and providers of services are requested to take urgent steps to eliminate communications interference reported by the Maspalomas Station.

(A detailed report is contained in document A/AC.105/732.)

Annex II

United Nations Programme on Space Applications: Schedule of training courses, workshops, conferences and symposia for implementation in 2000

Activity	*Title*	*Date and place*	*Objective*
1	United Nations/European Space Agency/Committee on Space Research Workshop on Data Analysis Techniques	May 2000 Bangalore, India	To provide an overview of global and regional satellite-based data communication systems, including Ka-band propagation issues
2	Workshop on Remote Sensing and Geographic Information Systems	April 2000, Rabat, Morocco CRASTE-LF	To provide a practical overview on remote sensing and geographic information systems for trainees at the start of their nine-month programme
3	Workshop on Remote Sensing and Geographic Information Systems	April 2000, Ile-Ife, Nigeria ARCESSTE-E	To provide a practical overview of remote sensing for trainees at the start of their nine-month programme
4	Tenth United Nations/Sweden International Training Course on Remote Sensing Education for Educators	2 May-9 June 2000 Stockholm and Kiruna, Sweden	To develop the knowledge and skills of university educators in remote sensing technology and the capability to introduce elements of the technology in the academic curricula of their own universities
5	Ninth United Nations/European Space Agency Workshop on Basic Space Science: Satellites and Network of Telescopes—Tools for Global Participation in the Studies of the Universe	27-30 June 2000 Toulouse, France	To address the following main topics: (a) the use of archives of space missions and new observations from space (World Space Observatory); (b) *in situ* and remote exploration of the solar system; (c) experience with, results from and the need for networks of telescopes; and (d) benefits of space science to society
6	United Nations/Austria Symposium on Space Technology and Development	11-15 September 2000 Graz, Austria	Following UNISPACE III, a new orientation to this series of symposia is being discussed with the co-sponsors

Activity	*Title*	*Date and place*	*Objective*
7	United Nations/IAF Workshop on Operational Strategy for Sustainable Development using Space	28 September-1 October 2000 São José dos Campos, Brazil	To develop elements of an operational strategy to be implemented for using space technology in sustainable development.
8	Workshop on Space Telecommunications	September-October 2000 Rabat, Morocco, CRASTE-LF	To provide a practical overview of space telecommunications for trainees at the start of their nine-month programme.